

APPENDIX C

AIR DISPERSION MODEL

P-060100

MEMORANDUM

DATE: March 5, 2005

TO: Cheryl Robinson, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-060100

SUBJECT: Modeling Review for Norm's Utility Contractor, Inc. Permit to Construct Application for a Portable Hot Mix Asphalt Plant at their facility near Rathdrum, Idaho.

1.0 Summary

Norm's Utility Contractor, Inc. (Norm's) submitted a Permit to Construct (PTC) application for a portable hot mix asphalt plant, primarily located at their site near Rathdrum, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were submitted in support of a permit application to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02).

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses in combination with DEQ's staff analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs); or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	Explanation/Consideration
A rock crushing plant and ready mix concrete batch plant are also present at the site. Impacts of the crusher and batch plant were included in the modeling assessment.	To assure compliance with NAAQS, reasonable control of fugitive emissions are required. General requirements of the rock crusher permit by rule will satisfy this requirement.
Controlled emissions were used to demonstrate compliance with the TAPs from the HMA plant.	As per IDAPA 58.01.01.210.08 c, TAP emission limits are required in the permit if controlled emissions were used in the modeling analyses to demonstrate compliance.
The HMA may not be located in any PM ₁₀ non-attainment areas	Impacts from the facility exceed PM ₁₀ significant contribution levels.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The proposed Norm's facility is located in Kootenai County, designated as an attainment or unclassifiable area for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), lead (Pb), ozone (O₃), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the HMA exceed the significant contribution levels (SCLs) of IDAPA 58.01.01.006.91, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

2.2 Background Concentrations

Background concentrations were revised for all areas of Idaho by DEQ in March 2003¹. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations used in these analyses are listed in Table 3. Rural/agricultural default values were used for background concentrations. PM₁₀, SO₂, and NO₂ were the only pollutants included in the modeling analyses, since emissions of other criteria pollutants were below modeling applicability thresholds used by DEQ. The SO₂ annual emissions rate was also below the modeling applicability threshold.

During review of the application, DEQ was made aware of a neighboring stone crushing facility. DEQ used methods in the March 2003 background concentration memo¹ to account for PM₁₀ impacts from neighboring facilities. The method involves using generic modeling results as a function of emissions quantities for facilities within 1.0 kilometers. An emissions rate of 100

¹ Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

ton/year was used, with the 24-hour averaging period impact factor of 0.036 $\mu\text{g}/\text{m}^3$ per ton/year and the annual averaging period impact factor of 0.011 $\mu\text{g}/\text{m}^3$ per ton/year, to calculate incremental impacts of 3.6 $\mu\text{g}/\text{m}^3$ for 24-hour PM_{10} and 1.1 $\mu\text{g}/\text{m}^3$ for annual PM_{10} . Impacts of other pollutants from the neighboring facility were assumed to be negligible and indistinguishable from background concentrations.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ^a ($\mu\text{g}/\text{m}^3$) ^b	Regulatory Limit ^c ($\mu\text{g}/\text{m}^3$)	Modeled Value Used ^d
PM_{10} ^e	Annual	1.0	50 ^f	Maximum 1 st highest ^g
	24-hour	5.0	150 ^h	Maximum 6 th highest ⁱ
Carbon monoxide (CO)	8-hour	500	10,000 ^j	Maximum 2 nd highest ^g
	1-hour	2,000	40,000 ^j	Maximum 2 nd highest ^g
Sulfur Dioxide (SO_2)	Annual	1.0	80 ^f	Maximum 1 st highest ^g
	24-hour	5	365 ^j	Maximum 2 nd highest ^g
	3-hour	25	1,300 ^j	Maximum 2 nd highest ^g
Nitrogen Dioxide (NO_2)	Annual	1.0	100 ^f	Maximum 1 st highest ^g
Lead (Pb)	Quarterly	NA	1.5 ^h	Maximum 1 st highest ^g

^a IDAPA 58.01.01.006.91

^b Micrograms per cubic meter

^c IDAPA 58.01.01.577 for criteria pollutants

^d The maximum 1st highest modeled value is always used for significant impact analysis

^e Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^f Never expected to be exceeded in any calendar year

^g Concentration at any modeled receptor

^h Never expected to be exceeded more than once in any calendar year

ⁱ Concentration at any modeled receptor when using five years of meteorological data

^j Not to be exceeded more than once per year

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$) ^a	Impact of Neighboring Facility ($\mu\text{g}/\text{m}^3$)
PM_{10}	24-hour	73	3.6
	annual	26	1.1
Sulfur dioxide (SO_2)	3-hour	34	Neg
	24-hour	26	Neg
Nitrogen dioxide (NO_2)	annual	17	Neg

^a Micrograms per cubic meter

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used in analyses submitted by Norm's. CH2M Hill (CH2M), Norm's consultant, performed the air quality analyses.

Table 4. MODELING PARAMETERS		
Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3	ISCST3 version 02035.
Meteorological data	1987-1991	Spokane, Washington, surface and upper air data
Terrain	Considered	Elevation data from digital elevation model (DEM) files
Building downwash	Considered	The building profile input program (BPIP) was used
Receptor grid	Grid 1	25-meter spacing along boundary out to 100 meters
	Grid 2	50-meter spacing out to 500 meters
	Grid 3	100-meter spacing out to 500 meters

3.1.1 Modeling protocol

A protocol was submitted to and approved by DEQ prior to submission of the application. Modeling was conducted using methods and data presented in the protocol and the *State of Idaho Air Quality Modeling Guideline*.

3.1.2 Model Selection

ISCST3 was used by CH2M to conduct the ambient air analyses. ISCST3 is appropriate for this facility since all ambient air locations are outside of building recirculation cavities. ISCST3 accounts for building downwash, but does not calculate concentrations for areas within recirculation cavities.

3.1.3 Meteorological Data

Site-specific meteorological data are not available for the proposed facility site near Rathdrum. Spokane, Washington airport is the closest area where model-ready surface and upper air meteorological data are available. These data were used in the modeling analyses.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. The CH2M and DEQ verification modeling analyses were conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.4 Terrain Effects

The modeling analyses submitted considered elevated terrain, with elevations obtained from USGS digital elevation model (DEM) files. Elevations of terrain were not thoroughly reviewed by DEQ since review of a topographic map indicates the area is nearly flat for dispersion modeling purposes, especially considering that maximum impacts are located very near the emissions sources.

3.1.5 Facility Layout

DEQ verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to a facility plot plan submitted with the application and aerial photographs of the area.

3.1.6 Building Downwash

Plume downwash effects caused by structures proposed for the facility were accounted for in the modeling analyses. The Building Profile Input Program (BPIP) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for ISCST3.

3.1.7 Ambient Air Boundary

The property boundary was used as the ambient air boundary for the modeling analyses submitted by Norm's. DEQ assumed reasonable measures would be taken to ensure the general public are excluded from access to the property.

3.1.8 Receptor Network

The receptor grids used by CH2M met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined the receptor grid was adequate to reasonably resolve maximum modeled concentrations.

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application, the engineering technical memorandum, and the proposed permit. The following approach was used for DEQ verification modeling:

- All modeled emissions rates were equal to or greater than the facility's emissions calculated in the PTC application or the permitted allowable rate.
- More extensive review of modeling parameters selected was conducted when model results for specific sources approached applicable thresholds.

Sources associated with the HMA and the concrete batch plant will only operate for a maximum of 10 hours in any day. The hourly emissions rates used in the model were adjusted by a factor of 10/24 to account for periods of no emissions. The adjusted emissions rate was modeled for all hours of each day.

Table 5 and Table 6 list criteria emissions rates for sources included in the short-term and long-term dispersion modeling analyses, respectively. CH2M included fugitive PM₁₀ emissions from material handling operations (sand and aggregate to and from storage piles, and material transfers

involving conveyors). CH2M assessed 24-hour crusher impacts assuming uncontrolled emissions rates and a 16 hour/day operational rate. DEQ determined reasonable control of fugitive emissions, as required by the permit by rule and Idaho regulations, would easily attain a 70 percent control efficiency, based on information presented in EPA's emissions factor data base, AP42.² DEQ also concluded that modeling maximum emissions for 24 hour/day would be more appropriate for conservatively assessing maximum 24-hour impacts. Annual modeled emissions for the crusher were based on 1,250 hour/year.

Table 5. MODELED EMISSIONS RATES FOR SHORT-TERM (24-HOUR AND LESS)			
Source Id	Description	Emission Rates (lb/hr)^a	
		PM₁₀^b	SO₂^c
SILO1	Cement Silo Filling	0.00875 ^d	0.0
SILO2	Fly Ash Silo Filling	0.00875 ^d	0.0
VENT	Batcher Vent	0.0050 ^d	0.0
LOAD	Mix Loading	0.00875 ^d	0.0
GEN1	Emergency Generator	0.159 ^d	0.91 ^e 0.38 ^f
GEN2	Rock Crusher Generator	0.68 ^f (1.02 ^g)	5.87 ^g 3.91 ^f (5.87 ^g)
DRYER	Dryer	2.396 ^d	0.85 ^e 0.35 ^d
HEATER	Heater	0.00638 ^d (0.0118 ^h)	0.0012 ^e 0.00050 ^d (0.000932 ^h)
SILOA	Asphalt Silo	0.115 ^d	0.0
Fugitive Emissions Sources			
AGG1	Aggregate and Sand to Bin	0.475 ^d	0.0
HOP1	Hopper Loading	0.475 ^d	0.0
CRUSH	Crusher and Ass. Handling	8.83 ^f (3.98 ^g)	0.0
CONVEY	Conveyor	0.70 ^d	0.0

^a Pounds per hour emissions rates. Values in parentheses are those from DEQ's verification analyses, where those values differ from what was used in the submitted analyses

^b Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^c Sulfur dioxide

^d Hourly rate modeled for 24-hour standard. Based on 10 hr/day operation

^e Maximum rate modeled for 3-hour standard

^f Hourly rate modeled for 24-hour standard. Based on 16 hr/day operation

^g DEQ analyses based on emissions for 24-hr/day operations

^h Annual emissions assumed 6720 hr/yr operation, which equates to 18.4 hr/day. Submitted analyses were based on 10 hr/day and DEQ analyses were based on 18.5 hr/day.

ⁱ DEQ analyses based on emissions for 24 hr/day operations and 70% emissions control for reasonable dust control measures

² AP42, Fifth Edition. Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources. <http://www.epa.gov/ttn/chie/ap42/index.html>.

Table 6. MODELED EMISSIONS RATES FOR LONG-TERM (ANNUAL)				
Source Id	Description	Emission Rates (lb/hr) ^a		
		PM ₁₀ ^b	SO ₂ ^c	NO _x ^d
SILO1	Cement Silo Filling	0.00875 ^e	0.0	0.0
SILO2	Fly Ash Silo Filling	0.00875 ^e	0.0	0.0
VENT	Batcher Vent	0.0050 ^e	0.0	0.0
LOAD	Mix Loading	0.00875 ^e	0.0	0.0
GEN1	Emergency Generator	0.0217 ^f	0.0521 ^g	0.37 ^f
GEN2	Rock Crusher Generator	0.145 ^g	0.838 ^g	4.97 ^g
DRYER	Dryer	0.788 ^g	0.116 ^g	0.89 ^g
HEATER	Heater	0.0117 ^g	0.000927 ^g	0.155 ^g
SILQA	Asphalt Silo	0.0379 ^g	0.0	0.0
Fugitive Emissions Sources				
AGG1	Aggregate and Sand to Bin	0.475 ^e	0.0	0.0
HOP1	Hopper Loading	0.475 ^e	0.0	0.0
CRUSH	Crusher and Ass. Handling	1.90 ^g (0.567 ^h)	0.0	0.0
CONVEY	Conveyor	0.229 ^g	0.0	0.0

^a Pounds per hour emissions rates. Values in parentheses are those from DEQ's verification analyses, where those differ from what was used in the submitted analyses

^b Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^c Sulfur dioxide

^d Oxides of nitrogen

^e Based on 10 hr/day operation

^f Based on 500 hr/yr operation

^g Based on an allowable 1,250 hr/yr operation

^h Based on an allowable 1,250 hr/yr operation and 70% emissions control for reasonable dust control measures

Table 7 lists applicable TAP emissions increases associated with the HMA. Maximum lb/hr emissions rates were multiplied by a factor of 10/24 to account for maximum 10 hr/day operation. Initial modeling submitted by the applicant did not include polycyclic organic matter (POM), defined by IDAPA 58.01.01.586 as emissions of PAH mixtures, considered together as one TAP equivalent in potency to benzo(a)pyrene. Review of emissions calculations indicated the screening emissions level (EL) of POM in IDAPA 58.01.01.586 could be exceeded. Therefore, DEQ included POM in verification modeling analyses.

Table 7. TAP Emissions Rates used in Modeling				
TAP	TAP Emissions Rates (lb/hr)			
	DRYER	HEATER	SILOA	CONVEY
Benzene	4.06E-2	1.76E-6	6.33E-4	0.0
Formaldehyde	3.23E-1	6.29E-5	9.12E-3	0.0
Arsenic	5.83E-4	1.68E-6	0.0	0.0
Cadmium	4.29E-4	9.25E-6	0.0	0.0
Chromium	1.38E-3 ^a	2.82E-6 ^a	0.0	0.0
Chromium 6+	4.71E-4	0.0	0.0	0.0
Nickel	6.58E-3	1.76E-6	0.0	0.0
POM	5.71E-5	9.58E-9	2.84E-4	0.0

^a The total chromium emissions rate is below the 0.0033 lb/hr screening emission limit (EL) of IDAPA 58.01.01.585. Therefore, modeling analysis was not necessary (the applicant included chromium in the analyses)

3.3 Emission Release Parameters

Table 8 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity. Values used in the analyses appeared reasonable and within expected ranges. Additional documentation /verification of these parameters were not required.

Table 8. EMISSIONS AND STACK PARAMETERS					
Release Point /Location	Source Type	Stack Height (m) ^a	Modeled Diameter (m)	Stack Gas Temp. (K) ^b	Stack Gas Flow Velocity (m/sec) ^c
SILO1	Point	13.8	0.28	293	0.001
SILO2	Point	17.1	0.28	293	0.001
VENT	Point	4.9	0.2	293	0.001
LOAD	Point	11.7	0.52	293	0.001
GEN1	Point	4	0.2	795	41.533
GEN2	Point	4	0.2	708	113
DRYER	Point	8.5	0.46	439	152
HEATER	Point	3.4	0.51	505	2.0
SILOA	Point	8.5	0.85	293	0.001
Volume Sources					
Release Point /Location	Source Type	Release Height (m)	Initial Horizontal Dispersion Coefficient σ_{y0} (m)	Initial Vertical Dispersion Coefficient σ_{z0} (m)	
ACQ1	Volume	10.05	0.71	2.34	
HOP1	Volume	3.65	0.71	1.7	
CRUSH	Volume	3.05	12.2	2.84	
CONVEY	Volume	2.13	2.3	6.51	

^a Meters

^b Kelvin

^c Meters per second

3.4 Results for Significant and Full Impact Analyses

CH2M demonstrated compliance with NAAQS using full impact analyses. Results of preliminary significant impact analyses were not presented in the application. Results of the full impact analyses are presented in Table 9.

Pollutant	Averaging Period	Maximum Modeled Concentration ^a (µg/m ³) ^b	Background Concentration (µg/m ³)	Total Ambient Impact (µg/m ³)	NAAQS ^c (µg/m ³)	Percent of NAAQS
PM ₁₀ ^d	24-hour	73.8 ^e (61.2 ^f)	73 + 3.6	150.4 (137.8)	150	100 (92)
	Annual	6.9 (9.7)	26 + 1.1	34.0 (36.8)	50	68 (74)
Sulfur dioxide (SO ₂)	3-hour	53.3 ^g (52.9 ^h)	34	87.3 (86.9)	1,300	7 (7)
	24-hour	17.1 ^g (25.2 ^h)	26	43.1 (51.2)	365	12 (14)
Nitrogen dioxide (NO ₂)	Annual	3.5 (3.5)	17	20.5 (20.5)	100	20 (20)

^a Values in parentheses are those obtained from DEQ verification modeling

^b Micrograms per cubic meter

^c National ambient air quality standards

^d Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

^e Maximum 6th highest modeled concentration from modeling each of five years separately

^f Maximum 6th highest modeled concentration from modeling a five-year meteorological data set

^g Maximum 1st highest modeled concentration from modeling each of five years separately

^h Maximum 2nd highest modeled concentration from modeling a five year meteorological data set

3.5 Results for TAPs Analyses

Compliance with TAP increments were demonstrated by modeling uncontrolled TAP emissions (those TAPs with emissions exceeding the ELs) from the tank heater and load-out silo and controlled emissions from the dryer. Emissions limits for TAPs are needed in the permit, as per IDAPA 58.01.01.210.08.c, since impacts of controlled emissions were used to demonstrate compliance. Table 10 summarizes the ambient TAP analyses.

TAP	Averaging Period	Maximum Modeled Concentration ^a (µg/m ³) ^b	AACC (µg/m ³)	Percent of AACC
Benzene	Annual	0.00337 (0.00337)	0.12	
Cadmium	Annual	0.000004 (0.00004)	0.00056	
Formaldehyde	Annual	0.04834 (0.0483)	0.077	
Arsenic	Annual	0.000004 (0.00004)	0.00023	
Chromium 6+	Annual	0.000003 (0.00003)	0.00083	
Nickel	Annual	0.00048 (0.00048)	0.0042	
POM	Annual	Not Modeled (0.00148)	0.00030	

^a Values in parentheses are modeling results obtained by DEQ verification analyses

^b Micrograms per cubic meter

^c Meters

4.0 Conclusions

The ambient air impact analysis submitted, in combination with DEQ's verification analyses, demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

SB, App. B - UNCONTROLLED

Facility: Norm's Utility Contractor, Inc., Rathdrum, Portable HMA
 3/13/2006 17:11 Permit/Facility ID: P-060100 777-00372

Ambient Impacts - Facility Wide Full Impact Analysis (based on Screening Modeling, NO CO-LOCATION)
 A. Drum Mix Plant: 250 Tons/year 8,760 Hours/year 2,180,000 Tons/Year HMA Throughput
 Maximum emission for each pollutant from any full-burning option selected on "Facility Data" worksheet. Fuels Selected = Natural Gas
 B. Tank Heater: 2,1159 MMBtu Rated 8,760 Hours/year
 Maximum emission for each pollutant from heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = Natural Gas
 C. Generator: 0 gal/hour 8 Hours/year
 #7 Fuel Oil (Heater)
 Memo, March 14, 2003, Rick Harty & Kevin Scilling to Mary Anderson (at DEQ State Office Av. Division), "Background Concentrations for Use in New Source Review Dispersion Modeling"

¹ Non-Carcinogenic (S85) Impacts converted to 24 hr average using persistence factor x (hrs/day)/24
² Carcinogenic (S86) Impacts converted to annual average for dryer using persistence factor x (hrs/yr)/8760
 and persistence factor x (hrs/day)/24 for heater and generator

Pollutant	Averaging Period	Drum Dryer	Tank Heater	Generator	Load-out/ Silo Storage	HMA FACILITY TOTAL	Background Concentration (ug/m ³) ⁴	Total Ambient Impact (ug/m ³)	MAAQs (ug/m ³)	Percent of MAQs
PM ₁₀	24-hour Annual	Maximum Predicted Ambient Impact (ug/m ³) 1179.75	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 16.48	Maximum Predicted Ambient Impact (ug/m ³) 1198.51	73	1,272	150	847.7%
CO	1-hour Annual	Maximum Predicted Ambient Impact (ug/m ³) 235.959	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 3.93	Maximum Predicted Ambient Impact (ug/m ³) 239.83	28	268	50	531.7%
NO _x	1-hour Annual	Maximum Predicted Ambient Impact (ug/m ³) 59.0	Maximum Predicted Ambient Impact (ug/m ³) 7.94	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 473.8	Maximum Predicted Ambient Impact (ug/m ³) 540.7	3,608	4,141	10,000	41.4%
SO ₂	1-hour Annual	Maximum Predicted Ambient Impact (ug/m ³) 0.944	Maximum Predicted Ambient Impact (ug/m ³) 0.76	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 99.3	Maximum Predicted Ambient Impact (ug/m ³) 100.2	2,300	2,405	40,000	6.1%
Chlorine (as VOCs/TCOs) Load	1-hour Quarterly	Maximum Predicted Ambient Impact (ug/m ³) 14.52	Maximum Predicted Ambient Impact (ug/m ³) 0.52	Maximum Predicted Ambient Impact (ug/m ³) 0.00	Maximum Predicted Ambient Impact (ug/m ³) 15.04	Maximum Predicted Ambient Impact (ug/m ³) 16.56	8	27	365	7.3%
							15	8	80	10.2%
							3,00E+02	0.03	1.5	2.0%
Non-Carcinogenic (S85)										
HCl ²	24-hour Annual	0.00E+00	0.00E+00	0.00E+00		0.00E+00		0.00E+00	0.37%	0.000%
Phosphorus ²	24-hour Annual	0.00E+00	0.00E+00	0.00E+00		0.00E+00		0.00E+00	0.30%	0.000%
Propionaldehyde ²	24-hour Annual	0.00E+00	0.00E+00	0.00E+00		0.00E+00		0.00E+00	0.021%	0.000%
Quinone ²	24-hour Annual	0.00E+00	0.00E+00	0.00E+00		0.00E+00		0.00E+00	0.22%	0.000%
Carcinogenic (S86)										
Arsenic ²	Annual	3.18E-05	2.38E-05	0.00E+00		3.41E-05	Factor:	1	3.41E-05	14.8%
Benzene ²	Annual	2.21E-02	2.48E-05	0.00E+00	2.03E-02	4.24E-02	Factor:	1	4.24E-02	35.4%
Cadmium ²	Annual	2.33E-05	1.30E-05	0.00E+00		3.63E-05	Factor:	1	3.63E-05	6.5%
Chromium (VI) ²	Annual	0.00E+00	0.00E+00	0.00E+00		0.00E+00	Factor:	1	0.00E+00	0.0%
Hexavalent Chromium ²	Annual	2.50E-05	0.00E+00	0.00E+00		2.50E-05	Factor:	1	2.50E-05	30.8%
Formaldehyde ²	Annual	3.76E-01	8.07E-04	0.00E+00	2.60E-01	4.46E-01	Factor:	1	4.46E-01	578.9%
Nickel ²	Annual	3.57E-03	0.02E+00	0.00E+00		3.57E-03	Factor:	1	3.57E-03	83.1%
Polycyclic Organic Matter ²	Annual	9.50E-05	0.00E+00	0.00E+00	3.85E-03	3.94E-03	Factor:	1	3.94E-03	1316.8%